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EXAMINER

CHACE, CHRISTIAN

ART UNIT	PAPER NUMBER
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2187

DATE MAILED: 08/20/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/785,477

Applicant(s)

KANAI ET AL.

Examiner

Christian P. Chace

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 July 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 10 July 2003 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

This Office action has been issued in response to amendment filed 10 July 2003. Claims 1-18 are pending. Applicants' arguments have been carefully and respectfully considered, but they are not persuasive. Accordingly, this action has been made FINAL, as necessitated by amendment.

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 2/20/01 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement has been considered by the examiner. In the future, applicants are encouraged to provide a PTO-1449 or equivalent as well as a statement of some sort to indicate an IDS submission. In this case, the information was submitted attached to the priority document without explanation, which is, in all likelihood, the reason it was not entered previously.

Specification

Claims 1 and 5 are objected to because of the following informalities:

Amended claim 1 recites, "...the disk drive which connected to each of said disk controller..." Examiner notes the lack of a verb. Appropriate correction is required.

Amended claim 5 recites, "...an information for specifying...." This is awkward wording.

Drawings

The proposed drawing corrections received 10 July 2003 are approved by examiner.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-6, 9, 11-14, and 16-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In light of the instant amendments to the claims, the following issues come to light: (Note: it appears that punctuation may be at issue in some of the issues below)

With respect to claim 1, the second paragraph does not make sense. It is unclear whether the cache memory or the disk controllers receive(s) the access request.

Claim 2 is dependent upon claim 1.

Claim 3 recites, "...and the disk controller except the disk controller..." This does not make sense.

With respect to claim 4, examiner is unsure what, "a host computer stores" is. For example, does the host computer store information or the disk controller?

Claim 5 depends upon claim 4.

With respect to claim 6, examiner is unsure what, "...the destination of access," is. Is this a memory location? Also, there is no antecedent basis for this in the instant claim, or on claim 3 upon which the instant claim depends.

With respect to claims 9, 16, and 18, examiner is unsure what, "without being multiplexed," is, or what it has to do with storing data in a cache. Examiner notes, however, that Dewey et al does not disclose multiplexing to store data in the cache.

Claims 11-14 depend upon claim 1.

With respect to claims 16 and 18, what is, "doubled data?" Is this mirroring?

Claim 17 is dependent upon claim 3.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Dewey et al (US Patent # 5,724,501).

Examiner notes that with so many vague and indefinite issues in the claim language, it is very difficult to apply prior art to that claim language.

With respect to claims 1, 3, 4, 6, 7, 9, 10, 11, 12, and 13, a disk controller is disclosed in figures 6 and 7 as #401. A subsystem provided with plural disk controllers is shown in figure 7. Communication means between the disk controllers is shown as #426. Communications means between the disk drives are provided through interfaces

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#410, #412, and #414. The controllers are provided with cache memories #422, and control memories #424. The cache from one controller that receives an access request from a host computer can access and store data for the disk drive connected to the disk controller provided with the cache memory via the disk drive connected to another at least one disk controller via the disk interface via the communication means is all disclosed by Dewey et al in columns 11 and 12, and shown in figure 7.

With respect to claim 2, for control information stored in control memory, a cache directory for specifying a disk controller that stores data at the destination of access in its cache memory and a cache address are disclosed in the abstract.

With respect to claims 5, 8, 15, and 16, data coherency is disclosed by Dewey et al in the abstract. Metadata is control data which includes addresses (pointers) as claimed in the instant claims, as far as Examiner can tell.

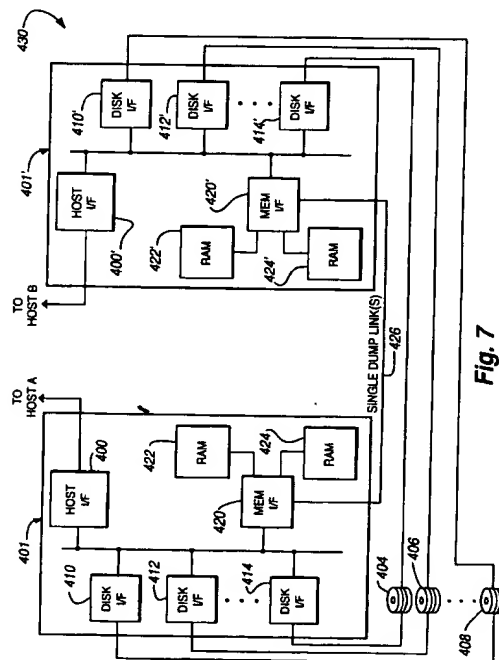
With respect to claim 14, measuring the frequency of traffic on each channel and compensating to better balance the activity of each system component is better known as "load balancing." It is inherent when there are more than one channel.

With respect to claim 17, column 2, lines 49-53 disclose an area of cache memory being divided into an area in which data for a disk drive connected to a disk controller that receives access via [a] disk interface being stored in an area in which data for a disk drive connected to another disk controller in a subsystem via a disk interface is stored and is being managed.

With respect to claim 18, examiner is unable to determine what the claim means in light of the issues of vague and indefinite wording as discussed supra. However, mirroring is disclosed in column 2, line 56, for example.

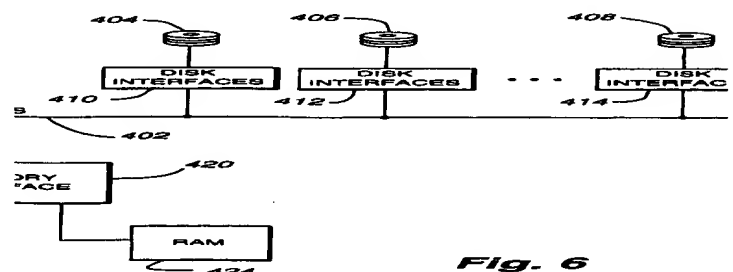
Examiner has copied figure 7 below for applicants' convenience:

U.S. Patent Mar. 3, 1998 Sheet 10 of 10 5,724,501



As applicants can clearly see from the figure, path 426 is the same as path 20 in figure 1 of the instant disclosure.

Figure 6 is reprinted below for even further clarification:



As is clearly seen supra, disks 404, 406, and 408 may be connected to independent interfaces as well.

Response to Arguments

Applicants' arguments are rendered moot in light of new grounds for rejection under 35 USC 112, second paragraph.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christian P. Chace whose telephone number is 703.306.5903. The examiner can normally be reached on 9-4-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Sparks can be reached on 703.308.1756. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703.305.3900.

Christian P. Chace 
DS/cpc


Donald Sparks
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